In the Claims

Please amend the claims as follows and cancel claims 9-10, 13 and 18-22 without prejudice.

1. (Previously presented) A method for detecting a pulldown technique comprising:

sequentially comparing adjacent pairs of frames of a video sequence to detect relatively high values and relatively low values of at least one frequency component of said adjacent pairs of frames; and

determining that the video sequence was produced by a 3:2 pulldown technique when a repeating pattern of said adjacent pairs is high/low/high/low/low values wherein said high and low values are determined relative to a dynamically adjusted threshold detection level based upon a noise level in the video sequence created by the pulldown technique.

2. (Original) The method of claim 1 further comprising determining that the video sequence was produced by a 2:2 pulldown technique when the repeating pattern is high/low/high/low.

3. (Previously presented) The method of claim 1 wherein the dynamically adjusted threshold detection level is based upon a noise level in the video sequence.

4. (Previously presented) The method of claim 3 wherein the noise level in the video sequence is created by the pulldown technique.

5. (Previously presented) The method of claim 2 wherein the dynamically adjusted threshold detection level is based upon a noise level in the video sequence.

6. (Previously presented) The method of claim 5 wherein the noise level in the video sequence is created by the pulldown technique.

7. (Previously presented) A method for determining a noise level in a 3:2 pulldown detection system comprising:

detecting a plurality of relatively low field difference values among a larger plurality of field difference values in a video stream created by a 3:2 pulldown technique, wherein the detection of the plurality of low field difference values further comprises detecting first, second and third sequential low field difference values, and wherein the first and second low field difference values are grouped into a first set and the second and third low field difference pairs are grouped into a second set, and wherein a first differential magnitude is calculated between the first set of low field difference values and a second differential magnitude is calculated between the second set of low field difference values, and wherein the noise level is equated to the third sequential low field difference value if the first and second differential magnitudes are of the same sign;

using said plurality of detecting low field difference values to estimate a noise level of said video stream.

8. (Previously presented) A method for determining a noise level in a 3:2 pulldown detection system comprising:

detecting a plurality of relatively low field difference values among a larger plurality of field difference values in a video stream created by a 3:2 pulldown technique, wherein the detection of the plurality of low field difference values further comprises detecting first, second and third sequential low field difference values, and wherein the first and second low field difference values are grouped into a first set and the second and third low field difference pairs are grouped into a second set, and wherein a first differential magnitude is calculated between the first set of low field difference values and a second differential magnitude is calculated between the second set of low field difference values, and wherein the noise level is equated to the average of the second sequential low field difference value and the third sequential low field difference value if the first and second differential magnitudes are of opposite signs;

using said plurality of detecting low field difference values to estimate a noise level of said video stream.

Claims 9-10 (Canceled)

11. (Previously presented) A method for dynamically determining threshold detection levels in a pulldown detection system comprising:

detecting a noise level in a video stream created by a pulldown technique; and

dynamically adjusting a threshold detection level based upon said detected noise level and said video stream wherein the threshold detection level is determined by:

a) determining that the pulldown technique is 3:2;

b) determining if a current field difference value is low or high; and

c) calculating the new threshold detection level based on the current field difference value and a plurality of prior field difference values wherein the calculating of the new threshold detection level for the high field difference value is determined by

i) subtracting the noise level from the current field difference value and the previous four field difference values resulting in five substracted values;

ii) summing up the five substracted values;

iii) dividing the sum by a scale factor based upon the noise level; and

iv) adding the noise level.

12. (Previously presented) A method for dynamically determining threshold detection levels in a pulldown detection system comprising:

detecting a noise level in a video stream created by a pulldown technique; and

dynamically adjusting a threshold detection level based upon said detected noise level and said video stream wherein the threshold detection level is determined by:

a) determining that the pulldown technique is 3:2;

b) determining if a current field difference value is low or high; and

c) calculating the new threshold detection level based on the current field difference value and a plurality of prior field difference values wherein the calculating of a new threshold detection level for the low field difference value comprising:

i) subtracting the noise level from the current field difference value and the previous four field difference values resulting in five subtracted values;

ii) summing up the five subtracted values;

iii) dividing the sum by a scale factor based upon the noise level;

iv) multiplying by 2; and

v) adding the noise level.

13. (Canceled)

14. (Previously presented) A method for dynamically determining threshold detection levels in a pulldown detection system comprising:

determining that the pulldown technique is 2:2;

obtaining a first, second and third previous frequency detection value; and

dynamically adjusting threshold detection level based on the first, second and third previous frequency detection values wherein dynamically adjusting said threshold detection level includes calculating a new threshold detection level by:

a) verifying that a 2:2 pulldown lock has not occurred;

b) verifying that the first and third previous frequency detection values are low;

c) obtaining an average of the first and third previous frequency detection values;

d) obtaining the magnitude of the difference between the average and the second previous frequency detection value;

e) dividing by 2; and

f) adding to an immediately preceding calculated threshold level.

15. (Previously presented) A method for dynamically determining threshold detection levels in a pulldown detection system comprising:

determining that the pulldown technique is 2:2;

obtaining a first, second and third previous frequency detection value; and

dynamically adjusting threshold detection level based on the first, second and third previous frequency detection values wherein dynamically adjusting said threshold detection level includes calculating a new threshold detection level by:

a) verifying that a 2:2 pulldown lock has not occurred;

b) verifying that the first and third previous frequency detection values are high;

c) obtaining an average of the first and third previous frequency detection values;

d) obtaining the magnitude of the difference between the average and the second previous frequency detection value;

e) dividing by 2; and

f) subtracting from an immediately preceding calculated threshold level.

16. (Previously presented) A method for dynamically determining threshold detection levels in a pulldown detection system comprising:

determining that the pulldown technique is 2:2;

obtaining a first, second and third previous frequency detection value; and

dynamically adjusting threshold detection level based on the first, second and third previous frequency detection values wherein dynamically adjusting said threshold detection level includes calculating a new threshold detection level by:

a) verifying that a 2:2 pulldown lock has occurred;

b) verifying that the first and third previous frequency detection values are low;

c) obtaining an average of the first and third previous frequency detection values;

d) obtaining the magnitude of the difference between the average and the second previous frequency detection value;

e) dividing by 4; and

f) adding to an immediately preceding calculated threshold level.

17. (Previously presented) A method for dynamically determining threshold detection levels in a pulldown detection system comprising:

determining that the pulldown technique is 2:2;

obtaining a first, second and third previous frequency detection value; and

dynamically adjusting threshold detection level based on the first, second and third previous frequency detection values wherein dynamically adjusting said threshold detection level includes calculating a new threshold detection level by:

a) verifying that a 2:2 pulldown lock has occurred;

b) verifying that the first and third previous frequency detection values are high;

c) obtaining an average the of first and third previous frequency detection values;

d) obtaining the magnitude of the difference between the average and the second previous frequency detection value;

e) dividing by 4; and

f) subtracting from an immediately preceding calculated threshold level

Claims 18-22 (Canceled)

23. (Withdrawn) A method for detecting source-type sequence breaks in a video stream comprising:

sequentially comparing adjacent pairs of frames of a video sequence to detect relatively high values and relatively low values of at least one frequency component of said adjacent pairs of frames; and

detecting source type breaks by analyzing a pattern of said relatively high and low values of at least one frequency component.

24. (Previously presented) A method for detecting source-type sequence breaks in a video stream comprising:

sequentially comparing adjacent pairs of frames of a video sequence to detect relatively high values and relatively low values of at least one frequency component of said adjacent pairs of frames; and

detecting source-type sequence breaks by analyzing a pattern of said relatively high and low values of at least one frequency component wherein the detection of source-type sequence breaks is determined by:

a) obtaining a frequency detection value;

b) calculating a sum of a number of previous frequency detection values; and

c) determining that a source-type sequence break has occurred if the frequency detection value is greater in magnitude than the sum and the frequency detection value is greater than a given threshold.

25. (Previously presented) A method for detecting source-type sequence breaks in a video stream comprising:

sequentially comparing adjacent pairs of frames of a video sequence to detect relatively high values and relatively low values of at least one frequency component of said adjacent pairs of frames; and

detecting source-type sequence breaks by analyzing a pattern of said relatively high and low values of at least one frequency component wherein the detection of source-type sequence breaks is determined by:

a) obtaining a frequency detection value;

b) obtaining a field difference value;

c) calculating a sum of a number of previous field difference values;

d) comparing the frequency detection value with two previous frequency detection values; and

e) determining that a source-type sequence break has occurred if the field difference value is larger than the sum and larger than a given threshold and the frequency detection is larger than the two previous frequency detection values.

26. (Previously presented) A method for detecting source-type sequence breaks in a video stream comprising:

sequentially comparing adjacent pairs of frames of a video sequence to detect relatively high values and relatively low values of at least one frequency component of said adjacent pairs of frames; and

detecting source-type sequence breaks by analyzing a pattern of said relatively high and low values of at least one frequency component wherein the detection of source-type sequence breaks is determined by:

a) obtaining a high magnitude frequency detection value;

b) obtaining a low magnitude frequency detection value;

c) calculating an average of a number of previous frequency detection values;

d) comparing the high magnitude and low magnitude frequency detection values with the average; and

e) determining that a source-type sequence break has occurred if the high magnitude frequency value is less than the average or the low magnitude frequency detection value is greater than the average.

27. (Withdrawn) A deinterlacing system which converts an interlaced video stream into a progressive video stream comprising:

a) a field assembly responsive to a last field, a next field, a current field and progressive source phase and operative to develop a progressive output frame;

b) a source detection module responsive to last, next and current fields and operative to develop a progressive source phase and a progressive source detected; and

c) an intra-frame deinterlacer responsive to the progressive output frame and the progressive source detected and operative to develop a progressive frame output.

28. (Withdrawn) The deinterlacing system of claim 27, further comprising an interlace artifact post-processing developed by the source detection model and sent to the intra-frame deinterlacer.

29. (Previously presented) A deinterlacing system which converts an interlaced video stream into a progressive video stream comprising:

a) a field assembly responsive to a last field, a next field, a current field and a progressive source phase and operative to develop a progressive output frame;

b) a source detection module responsive to last, next and current fields and operative to develop the progressive source phase and a progressive source detected wherein the source detection module further includes:

i) a frequency detection module responsive to the next field and the current field and operative to develop a frequency detection sum;

ii) a field differencing module responsive to the next field, the last field and a noise filter control and operative to develop a field difference sum; and

iii) a progressive source pattern/quality detector responsive to the field difference sum and frequency detection sum and operative to develop the progressive source phase, the progressive source detected, the interlace artifact post-processing and the noise filter control; and

c) an intra-frame deinterlacer responsive to the progressive output frame and the progressive source detected and operative to develop a progressive frame output.

30. (Previously presented) A video system which converts an interlaced video stream into a progressive video stream comprising:

a) an interlaced signal source;

b) a buffer having an input coupled to an output of the interlaced signal source wherein the buffer is operative to develop a last field, a next field and a current field;

c) a field assembly responsive to the last field, the next field, the current field and a progressive source phase and operative to develop a progressive output frame;

d) a source detection module responsive to last, next and current fields and operative to develop the progressive source phase and a progressive source detected wherein the source detection module further includes:

i) a frequency detection module responsive to the next field and the current field and operative to develop a frequency detection sum;

ii) a field differencing module responsive to the next field, the last field and a noise filter control and operative to develop a field difference sum; and

iii) a progressive source pattern/quality detector responsive to the field difference sum and frequency detection sum and operative to develop the progressive source phase, the progressive source detected, the interlace artifact post-processing and the noise filter control

e) an intra-frame deinterlacer responsive to the progressive output frame and the progressive source detected and operative to develop a progressive frame output;

f) a display driver responsive to the progressive frame output; and

g) a raster display having an input coupled to an output of the display driver.

31. (Original) The video system of claim 30 wherein the interlaced signal source is derived from an analog signal.

32. (Original) The video system of claim 30 wherein the interlaced signal source is derived from a digital signal.